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ABSTRACT

To test whether parental behavior has an important impact on a child's behavior in later life, records describing home atmosphere during childhood were linked with records of subsequent criminality gathered when subjects were middle aged. Discriminant function analysis based on six variables describing home atmosphere was highly successful in identifying subjects who were to become criminals. Child-rearing appears to influence personality development. Predictions of adult criminality based on knowledge of home atmosphere were more accurate than chance as well as predictions based on subjects' juvenile criminal records. (Author/CS)

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Consideration of the Impact of Parental Behavior on Subsequent Criminality*

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Consideration of the Impact of Parental Behavior on Subsequent Criminality

Paucity of evidence to support a view that child-rearing affects personality has led some authors (e.g., Clinard, 1974; Jessor & Jessor, 1977) to the conclusion that home atmosphere during childhood has a negligible effect upon problem behavior. Many of the studies which link parental behavior with personality development rely on a single source of information for both sets of variables; systematic reporting biases could thus produce obtained relationships. Most of the remaining studies have depended upon concurrent measurements, leaving doubt as to the direction of influence between parents' behavior and characteristics of the child. Only a handful of researchers have gathered information through longitudinal studies, using independent sources for describing childhood background and for measuring subsequent problem behavior (e.g., Block, 1971; Lefkowitz et al., 1977; Robins, 1966; Werner & Smith, 1977); these have not, however, attempted to identify the impact of child-rearing on subsequent behavior.

The present study uses a longitudinal design to test whether parental behavior has an important impact on subsequent criminality. Subjects for this study were selected from a treatment program designed to prevent delinquency. At the time of their introduction to the program, the youths ranged in age from 5 to 13 ($\bar{x}$=10.5, s.d.=1.6) years. Information about childhood came from case records which described, in detail, activities the counselors had observed on their visits to the homes of 253 boys between 1939 and 1945. The records included reports of conversations with parents, friends, neighbors, and teachers, as well as with the boys. The counselors, trained as social workers (with the exception

of one who was a nurse) visited the boys approximately twice a month for an average of 5 years. Counselor turnover (a potential problem from a treatment perspective) produced a benefit for research: most of the families were visited by more than one counselor.[1]

To justify treatment of family backgrounds as independent units for analyses, only one subject from a family was included. Boys not reared by their natural mothers were also excluded. After eliminating brothers (N=21) and those not reared by their natural mothers (N=36), 201 cases remained for analysis.[2]

In 1957, coders read each case thoroughly to form judgments about the home and family interaction. These coders had no access to information about the subjects other than that contained in treatment records. A 10% random sample of the records were read independently, by a second coder, to yield an estimate of the reliability of the coding.[3] Variables from the coded case records were used in the present study as measures of home atmosphere.

The mother's attitude toward her son had been classified as actively affectionate (if there had been considerable interaction, without continual criticism, between mother and child), passively affectionate (if there had been little interaction between mother and son, though the mother had shown concern for her child's welfare), ambivalent or passively rejecting (if there had been marked alternations in the mother's attitude toward her son so that she had seemed sometimes to be actively affectionate and sometimes rejecting, or if the mother had seemed unconcerned about the child's welfare), or actively rejecting (if the mother had appeared to be constantly critical of the boy). An independent reading

of 25 cases resulted in the same ratings for 80%.

Two ratings were combined to describe supervision. One noted the regularity with which the child's activities outside of school were governed by an adult; the second identified parental expectations for the boy as "high" if the child was given responsibility for care of his younger siblings, for preparation of meals, for contributing to the financial support of the family, or for doing "extremely well" in school. Independent coding yielded identical ratings for 84% on the first and for 76% on the second scale. These scales were combined to classify subjects into one of four categories: supervision generally present and high expectations for the child to accept responsibilities; supervision generally present without evidence that high expectations were placed on the child; occasional supervision; and supervision absent.

To rate parental conflict, raters were instructed to look for disagreements between the parents about the child, values, money, alcohol, and religion. For the present research, cases were divided into those whose parents evidenced considerable conflict and those coded in alternative categories (no indication, apparently none, or some conflict). Independent readers agreed, for this division, on 80% of the cases checked for reliability.

Three measures from the 1957 codes were combined to identify aggressive parents. Coders classified the aggressiveness of each parent by looking for evidence that the parent "used little restraint" when angry. They classified paternal discipline as "consistently punitive" if the father regularly used physical force (e.g., beating a child) or very harsh verbal abuse. Independent coding yielded 84% agreement for father's

aggressiveness, 92% for mother's aggressiveness, and 92% for father's punitiveness. If a parent was coded as aggressive or the father was coded as consistently punitive, the child was classified as having an aggressive parent.

A rating of "self-confident" was assigned to a mother if she showed signs of believing in her own abilities. For this variable, independent raters agreed in classifying 84% of the 25 cases used to estimate reliability.

In 1957, coders rated a father as alcoholic if the case record indicated that he had lost jobs because of repeated drinking, if marital problems were attributed primarily to his excessive drinking, if welfare agencies had repeatedly pointed to the father's drinking as grounds for family problems, or if the father had received treatment specifically for alcoholism. Independent coders agreed for 96% of the ratings on this variable. In 1948, after termination of the treatment program, criminal records on the family members of subjects were collected; these records were locked in a file separate from the case histories. In 1975, an assistant unfamiliar with the case records coded these criminal records. For the present study, a father was considered "deviant" if the case record indicated that he was an alcoholic, if the criminal record showed that he had been convicted at least three times for drunkenness, or if his criminal record showed that he had been convicted for a serious crime (i.e., theft, burglary, assault, rape, attempted murder, or murder).

A father was considered "absent" if his residence was not with the subject's mother. Independent coding of 25 cases yielded agreement on 96% regarding whether or not the boy was living with both natural

parents.[4] The 71 boys having absent fathers ranged in age, at the time when the loss occurred, from birth to 16 ($\bar{x}$=7.01, s.d.=5.03). The father-absent subjects were subclassified to identify those whose natural fathers had been present during their first 5 years and those for whom the absence had occurred prior to the age of 5.

Home atmosphere of the subjects during childhood was described through these ratings of mother's affection, supervision, parental conflict, parental aggression, mother's self-confidence, father's deviance, and paternal absence.

Subjects had been selected from congested urban neighborhoods. Nevertheless, there were differences in social status among the subjects. The case records supplied information about the father's occupation. Coders classified these occupations as white-collar (9.6%), skilled tradesmen (32.8%), or unskilled workers (57.6%). The reliability check yielded agreement on 96% of the ratings. A second measure of social status was provided by a rating of the neighborhoods in which the boys were raised. These ratings had been made, in 1938 and 1939, as part of the selection procedures. The ratings took into account neighborhood delinquency rates, and proximity to recreational facilities, bars, railroads, and junk yards. These ratings were coded on a four-point scale from better to worst neighborhoods. The two measures tended to covary, Cramer's V(6)=.218, p=.0044.

During 1975 and 1976, the names (and pseudonyms) of all the men who had been in the program were checked through court records in Massachusetts.[5] These criminal records were traced and coded by different people from those who coded other records. Coders of the criminal records had

no access to other information about the subjects. The court records were coded to show the type of crime and the age of the person when he was convicted. Convictions for serious property crimes (larceny, auto theft, burglary, and arson) and serious personal crimes (assault, attempted rape, rape, attempted murder, kidnapping, and murder) were used as dependent measures for this study.

Among the 201 men, 71 had been convicted for at least one serious crime; 53 had been convicted for property crimes and 34 for personal crimes (including 15 convicted for both types). Their ages when first convicted ranged from 8 to 38, with a mean of 18.7 (s.d.=8.7) and a median of 20. Those convicted prior to their 18th birthdays were classified as juvenile delinquents; those convicted after reaching the age of 18 were classified as adult criminals.

Between 1975 and 1978, the subjects were retraced. Among the 201 men included in the study, 153 (76%) were alive and in Massachusetts at least until the age of 40;[6] 16 (8%) had died prior to their 40th birthdays; 29 (14%) had migrated from Massachusetts; and 3 (1%) remained to be found.

After separately analyzing the relationship to crime of each of the childhood variables, multiple regression analyses (General Linear Model Procedure, Barr et al., 1976) were used to ascertain the contribution of home atmosphere to the variance in number of serious property and personal crimes. To test the degree to which knowledge of home atmosphere could enable accurate prediction of subsequent crime, the six central variables describing home atmosphere were used to identify criminals among the subsample whose criminal records provided the most complete histories of

convictions; those men living in Massachusetts at least until the age of 40.

Results

As a first step toward learning whether parental behavior contributes to subsequent differences in criminality, the seven scales describing home atmosphere (mother's affection, supervision, parental conflict, parental aggression, mother's self-confidence, father's deviance, and paternal absence) and the two scales describing social status were individually analyzed for their contributions to the variance in number of serious crimes against property and persons.

With the exception of father's absence, each of the scales describing home atmosphere accounted for a statistically significant ($p<.05$) proportion of the variance in number of crimes against property, persons, or both. The boys who lacked maternal affection, who lacked supervision, whose mothers lacked self-confidence, and whose fathers were deviant were more often subsequently convicted for property crimes. The boys who lacked supervision, whose mothers lacked self-confidence, who had been exposed to parental conflict and to aggression were subsequently more often convicted for personal crimes. Neither of the measures of social status was significantly related to either type of crime.

To evaluate the contribution of parental behavior to subsequent criminality, the six central variables describing home atmosphere were divided into two sets. The first set included those variables which described characteristics of the parents: parental aggressiveness, paternal deviance, and mother's self-confidence; these characteristics

might be viewed as antecedent to child-rearing practices. The second set included the three variables which described interpersonal behavior: parental conflict, supervision, and mother's affection; these were considered to be direct measures of child-rearing. The effect of this division was to classify families in two ways. The first classification took account of relationships among the variables describing the parents; the second took account of relationships among the variables describing child-rearing.

Sequential multiple regression models were used. They introduced the measure of social status (the interaction of father's occupation and neighborhood) as the first variable. The regression procedure next evaluated the sequential contribution to explained variance of parental characteristics (the interaction of paternal deviance, maternal self-confidence, and parental aggression). After controlling effects of both social status and parental characteristics, the procedure evaluated effects of child-rearing (i.e., the interaction of supervision, parental conflict and the mother's affection). Table 1 describes the decomposition of the regression model.

In predicting property crimes, the model accounts for 39.1% of the variance, $p=.0003$.[7] Parental characteristics account for 6.1% of the variance after controlling social status, $p=.0404$.[8] After effects of social status and parental characteristics have been controlled, the child-rearing variables account for 26.1% of the remaining variance, $p=.0003$.[9]

In predicting personal crimes, the model accounts for 35.7% of the variance, $p=.0028$.[10] After effects of social status and parental charac-

teristics have been removed, the three more direct measures of child-rearing account for 24.4% of the remaining variance, $p=.0023$.[11]

In predicting the total number of serious crimes for which the men had been convicted, the model accounts for 39.1% of the variance, $p=.0003$.[12] Parental characteristics account for 5.9% of the variance after effects of social status have been controlled, $p=.0209$.[13] The child-rearing variables account for 26.0% of the variance after removing effects of both social status and parent characteristics, $p=.0005$.[14]

Adding information about whether or not a man had been reared in a home marked by paternal absence did not reliably increase the accuracy of any of the predictions.[15]

Within the (relatively restricted) range of social class represented in the study, the contribution of social status to the variance in crimes was not statistically reliable. On the other hand, both parental characteristics and child-rearing practices were reliably related to the number of crimes for which the subjects had been convicted.[16]

After discarding men who had died before the age of 40, migrated from Massachusetts, or who have not yet been found, 152 men who were living in Massachusetts at least until the age of 40 and whose case records had been coded for all six variables describing home atmosphere remained for discriminant function analyses. Among these men, the discriminant function based on home atmosphere correctly identified 75.0% as criminals or noncriminals; random predictions based on prior probabilities would be expected to identify only 52.2% correctly, $z=5.63$, $p<.0001$.[17] This discriminant function correctly identified 81.7% of the 60 criminals

and 70.7% of the 92 noncriminals.

Among the 60 men convicted for serious crimes and still living in Massachusetts at the age of 40, 18 had been convicted only as juveniles, 23 had first been convicted after the age of 18, and 19 had been convicted both as juveniles and as adults. Were one to predict that only and all juvenile delinquents would be convicted as adults, the prediction would be correct for 73.0%, an improvement over an expectation of 60,0% from random procedures based on prior probabilities, $z=3.27$, $p=.0011$. This prediction would be correct for 45.2% of the adult criminals and for 83.6% of the men not convicted as adults. Predictions based on juvenile records would, of course, be right for none of the men first convicted as adults (54.8% of the adult criminals) and for only 51.4% of the juvenile delinquents.

Among men living in Massachusetts at the age of 40, the discriminant function analysis based on home atmosphere during childhood correctly identified 80.9% as criminal or noncriminal after the age of 18. Use of the variables describing home atmosphere during childhood resulted in a 20.9% improvement over chance identification, $z=5.26$, $p<.0001$, and a 7.9% improvement over predictions based on the subjects' juvenile criminal histories, $z=2.19$, $p=.0282$. This function correctly identified as criminals 65.2% of the men who had first been convicted as adults. In terms of their subsequent criminal records, this discriminant function correctly sorted 78.4% of the juvenile delinquents and 81.7% of those who had not been juvenile delinquents.[18]

Summary and Discussion

Skepticism regarding the impact of home environment during childhood on subsequent problem behavior provided the focus for this research. Records describing home atmosphere during childhood, recorded during childhood, were linked with records of subsequent criminality, gathered when the subjects were middle-aged. The two sources of information were independent: data collection had been separated by several decades; the data had been coded by different people; the coders had no access to information other than that which they were coding. Therefore, measures of home atmosphere were uncontaminated by retrospective biases and measures of subsequent behavior were uncontaminated by knowledge of home background.

Records describing home atmosphere had been written between 1939 and 1945. These records were case reports of counselors' repeated home visits to the 201 boys included in this study. The case records were coded, in 1957, to provide descriptions of home atmosphere.

Information about criminal behavior was gathered from court records, 30 years after termination of the program from which descriptions of home atmosphere had been collected. Subjects were considered criminals if they had been convicted for serious crimes.

In preliminary analyses, six of seven variables describing home atmosphere were reliably related to criminal behavior. Only father's absence failed to distinguish criminals from noncriminals. Considering the emphasis given to broken homes as a source of subsequent criminality (e.g., Bacon et al., 1963; Glueck & Glueck, 1951; Wadsworth, in press; Willie, 1967), this finding is worthy of note.

Multiple regression analyses indicated that six variables describing home atmosphere in childhood account for a significant proportion of the variance in number of convictions for serious crimes. After controlling effects of differences in social status, parental characteristics and child-rearing variables accounted for 32.2% of the variance in number of convictions for property crimes and 30.3% of the variance in number of convictions for personal crimes. The three most direct measures of child-rearing (supervision, mother's affection, and parental conflict) accounted for approximately a quarter of the variance in number of convictions for serious crimes--after effects of both social status and parental characteristics had been removed.

Discriminant function analyses based on the six variables describing home atmosphere correctly identified 75% of the men living in Massachusetts to the age of 40 as either subsequently criminal or noncriminal; further, these six variables provided a function which, for 80.9% of the men, correctly discriminated those convicted and those not convicted for serious crimes as adults. By limiting analyses to men living in Massachusetts, whatever differences contribute to migration or early death had been controlled; therefore, the accuracy of discriminant functions among this subsample is interpreted as providing support to the view that home atmosphere during childhood contributes to criminality.

When used to identify men convicted as adults, the discriminant function identified as criminals almost two-thirds of the men first convicted after the age of 18. This function also correctly sorted more than three quarters of the juvenile delinquents, distinguishing between those who were and those who were not adult criminals.

Although the discriminant functions based on home atmosphere were surprisingly successful in identifying men who were to become criminals, it would be a mistake to conclude that the longitudinal design of this research has led to recognition of the causes of crime. Not only is this research limited by its subjects (all of whom were reared in congested urban areas during the thirties and early forties), but also, by the hypotheses which were considered. In this research, parental aggression, paternal deviance, maternal self-confidence, supervision, mother's affection, and parental conflict indexed home atmosphere; unconsidered variables might better describe which features in the child's home affect his behavior. In this research, the possibly confounding variable of social status was considered; other conditions might account for the apparent link between home atmosphere and crime. Nevertheless, the evidence from this study suggests that parental behavior does have an important impact on subsequent behavior: Predictions of adult criminality based on knowledge of home atmosphere were not only markedly more accurate than chance--they were also more accurate than predictions based on the individuals' juvenile criminal records.

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Footnotes

[1]The project included a matched control group. Since records on family life, for the control group, were limited to information gathered during the intake interviews, supplemented by information from secondary sources, the control group was not used in this study. Originally, 325 boys were included in both the treatment group and the control group. By January, 1942, 253 boys remained in each group. (See Powers and Witmer, 1951, for details regarding selection of cases and a description of the treatment programs.)

[2]The criteria are not mutually exclusive. Five men were eliminated through both of the selection criteria.

[3]See McCord and McCord (1960) for a complete description of the coding.

[4]Of the 86 deviant fathers, 40 were also absent fathers.

[5]These records were supplemented by court records from the states of New York, Maine, Michigan, Nebraska, and Florida, where some of the men had resided.

[6]Among them, 147 were in Massachusetts through their 45th birthdays.

[7]$F(45,151)=2.15$

[8]$F(7,151)=2.16$

[9]$F(27,151)=2.40$

[10]$F(45,151)=1.87$

[11]$F(27,151)=2.13$

[12]$F(45,151)=2.16$

[13]$F(7,151)=2.45$

[14]$F(27,151)=2.39$

[15]R^2 was increased by .002 for property crimes, .007 for personal crimes,

and .001 for total crimes.

[16]Without controlling for social status, parental characteristics and child-rearing variables accounted for 36.7% of the variance in property crimes, $F(34,162)=2.76$, $p \leq .0001$, 30.8% of the variance in personal crimes, $F(34,162)=2.12$, $p=.0010$, and 36.3% of the variance in total number of serious crimes, $F(34,162)=2.71$, $p \leq .0001$.

[17]The model used to estimate predictions based on chance assumes that the number of predictions as criminal would be proportional to the actual distribution of criminals among subjects. Alternative models which might be considered range from assuming that each individual is as likely to be convicted as not (which would result in an expectation for correct predictions among half the noncriminals and half the criminals) to assuming that all or no individuals would be convicted. Although a "rational bet" would maximize correct predictions by predicting that all individuals would fall into the larger class, this model is inappropriate when the interest is in correct identification of those in the smaller class.

[18]The "rational bet" that men not convicted as juveniles would not be convicted as adults would be correct for 80% of the men not convicted as juveniles. Since this bet would be correct only for the noncriminals, the prediction would fail to identify correctly any of the critical group: men first convicted as adults.

Table 1

Home Environment and Subsequent Criminality

A. Predicting Property Crimes

Model: R^2=.3910 F(45,151)=2.15 p=.0003

Sequential contribution:	DF	R^2	F	PR > F
Social Status	11	.0688	1.55	.1185
Parental Characteristics	7	.0610	2.16	.0404
Child-rearing	27	.2612	2.40	.0005

B. Predicting Personal Crimes

Model: R^2=.3573 F(45,151)=1.87 p=.0028

Sequential contribution:	DF	R^2	F	PR > F
Social Status	11	.0541	1.16	.3222
Parental Characteristics	7	.0588	1.97	.0616
Child-rearing	27	.2444	2.13	.0023

C. Predicting Total Crimes

Model: R^2=.3912 F(45,151)=2.16 p=.0003

Sequential contribution:	DF	R^2	F	PR > F
Social Status	11	.0620	1.40	.0620
Parental Characteristics	7	.0691	2.45	.0209
Child-rearing	27	.2601	2.39	.0005